https://www.electricaleasy.com/2017/04/grading-of-underground-cables.html

The electrostatic stress in a cable isn't uniformly distributed. The potential gradient is inversely proportional to the distance from the center of the cable. Hence it will be maximum (gmax) at the surface of the conductor and goes on decreasing until it becomes minimum (gmin) at the surface of the sheath. That means **electrostatic stress in the dielectric of a cable** is maximum at the surface of the conductor and minimum at the surface of the sheath.

Obviously, for a safe cable, the dielectric strength of the insulation provided must be more than gmax i.e. maximum value of potential gradient. As the electrostatic stress in a cable isn't uniformly distributed, the strength of the dielectric required isn't uniform either. We need maximum dielectric strength only at the surface of the core. The remaining dielectric is unnecessarily strong and hence not utilized properly. This also causes the cable to be unnecessarily thick. A large size of electric equipment is always a disadvantage. Furthermore, the possibility of insulation breakdown is more if the stress distribution is non-uniform. These problems are rectified by **Grading of the cables**.